Extracted from BS 5837: 2012 Trees in relation to design, demolition and construction- Recommendations

This text has been extracted from the aforementioned guidance document and highlights the key factors when considering trees in relation to demolition and construction. For further information and conformation on protection measures contractors should familiarise themselves with the full document prior to any site works.

Section 3: Terms and definitions

3.5 construction
site-based operations with the potential to affect existing trees.

3.6 construction exclusion zone
area based on the root protection area (3.7) from which access is prohibited for the duration of a project

3.7 Root Protection Area (RPA)
layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority

Section 4: Feasibility: surveys and preliminary constraints.

4.6 For single stem trees, the RPA (see 3.7) should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter. For trees with more than one stem, one of the two calculation methods below should be used. In all cases, the stem diameter(s) should be measured in accordance with Annex C, and the RPA should be determined from Annex D. The calculated RPA for each tree should be capped to 707 m².

a) For trees with two to five stems, the combined stem diameter should be calculated as follows:

$$\text{(stem diameter 1)}^2 + \text{(stem diameter 2)}^2 + \ldots + \text{(stem diameter 5)}^2$$

b) For trees with more than five stems (not illustrated in Annex C), the combined stem diameter should be calculated as follows:

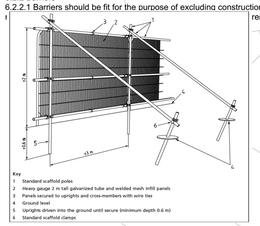
$$\text{(mean stem diameter)}^2 \times \text{(number of stems)}$$

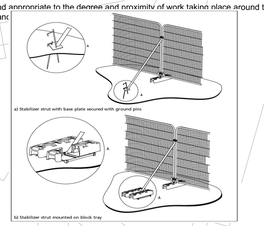
6.1 Arboricultural method statement

6.1.1 A pragmatic, logical approach to demolition should be adopted and any operations, including access, proposed within the RPA (or crown spread where this is greater) should be described within an arboricultural method statement, in order to demonstrate that the operations can be undertaken with minimal risk of adverse impact on trees to be retained.

6.2 Barriers and ground protection
6.2.1 General
6.2.1.1 All trees that are being retained on site should be protected by barriers and/or ground protection (see 5.5) before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of

6.2.2 Barriers
6.2.2.1 Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the f remain rigid and





6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use is part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

6.2.3.2 Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary round protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

6.2.3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

7.2 Avoiding physical damage to the roots during demolition or construction

7.2.1 To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable, subject to justification. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.

7.3 Tree protection during demolition

7.3.1 Where demolition is proposed on a site where trees are to be retained, access facilitation pruning should be undertaken as necessary to prevent injurious contact between demolition plant and the tree(s). In some cases, working space may be provided by temporarily tying back tree branches. Pruning or tying should be undertaken in accordance with a specification prepared by an arboriculturist.
NOTE The local authority will be able to advise whether the trees are under statutory protection such that consent for tree works might be required.

7.3.2 When demolishing a structure (including underground structures) within what would otherwise be the RPA, barriers should be erected, and ground protection installed (see 6.2.3), to protect the underlying soil to the edge of the existing structure.

7.3.4 Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building (often referred to as "top down, pull back")

Table 1 **Cascade chart for tree quality assessment** - Extracted from BS5837- July 2012.

Category and definition	**Criteria (including subcategories where appropriate)**		
Trees unsuitable for retention (see Note)			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*		
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**
Trees to be considered for retention			
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value

TREE WORKS NOTES:

All felling and tree surgery is to be carried out by an Arboricultural Association approved contractor. All operations are to be carried out in accordance with BS3998:2010 Recommendations for tree work and N.P.T.C certification guidelines.

METHOD STATEMENT:

Tree felling and surgery works are to be carried out prior to the commencement of main construction works. Once complete, approved hoarding is to be erected around the construction area. This hoarding is to be sited outside the canopy extents of retained trees and is to remain outside the canopies throughout the contract period. This fencing shall not be removed or repositioned without the prior written permission of the LPA.

Under no circumstances should materials, vehicles, equipment, diesel or spoil be stored within the canopy of retained trees. Similarly no excavations for services or other construction activities are to be carried out within the protected zone unless approved in writing from the LPA.

Note;-

- Tree felling should not be uundertaken through the months of March to August unless agreed with the local planning authority due to the nesting birds season.

- If the program of works clashes with these dates then any trees in question should be heavily prunned to reduce the chance of nesting during the above months.

- All tree removal and excavation works should be undertaken in accordance with Mulberry's Preliminary Tree Survey.

TREES OUTSIDE OF SITE OWNERSHIP TO REMAIN AS EXISTING

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NOTE:
1. Do not scale from this drawing. Always work to noted dimensions.
2. All dimensions are in millimetres unless otherwise stated.
3. All setting out, levels and dimensions to be agreed on site.
4. The dimensions of all materials must be checked on site before being laid out.
5. This drawing must be read with the relevant specification clauses and detail drawings.
6. Order of construction and setting out to be agreed on site.

EXISTING TREE
Higher quality-could be retained

EXISTING TREE
Medium quality- retention tbc

EXISTING TREE
Poor quality/Too close to construction site-should be removed

Issue	Date	Status	Drawn	Apprvd.
01	24/07/15	For Comment	SF	DL

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Client Jamworks

Project Bevington Bush

Drg Title Bevington Bush
Tree Retention & Removal

Created on	Created by	Approved by
20/07/2015	RB	DL

Scale	Size	Status
1:250	A1	FOR PLANNING

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Issue 01

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